

# State of Alaska

## **WESTERN TANANA FLATS PRESCRIBED BURN PLAN**

1<sup>st</sup> approved September 22, 1995

Revised and re-approved August 7, 1996

Amended June 14, 1999

Revised and re-approved August 1, 2001

A Cooperative Wildlife Enhancement and  
Forest Vegetative Fuel Management Project



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## WESTERN TANANA FLATS PRESCRIBED BURN PLAN

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This approved prescribed burn plan constitutes a delegation of authority to burn. No one has the authority to burn without an approved plan or in a manner not in compliance with the approved plan. Actions taken in compliance with this approved prescribed burn plan will be fully supported. Personnel will be held accountable for actions taken which are not in compliance with elements of the approved plan regarding execution in a safe and cost-effective manner. The complexity of this project is rated as:

HIGH \_\_\_\_\_ MODERATE X LOW \_\_\_\_\_

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## Technical Review Checklist

Area/ Region:	EA Name:		
Project Name: <b>West Tanana Flats Prescribed Burn</b>	EA number:		
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SIGNATURE PAGE			
AGENCY APPROVALS			
PREScribed FIRE PLAN ELEMENTS:			
Management Summary and Risk Analysis			
Complexity Rating			
Resource Objectives, Fire Treatment Objectives and constraints			
Physical Description			
Preburn Considerations			
Prescribed Fire Prescription and Environmental Parameters			
Fire Behavior, Including Calculations and Narrative			
Ignition Methods			
Smoke Management Information			
Public Information and Notification			
Organization and Equipment List			
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## **PART I — MANAGEMENT SUMMARY AND RISK ASSESSMENT**

### **I PROPOSED ACTION**

This plan describes a program of prescribed burning for approximately 285,785 acres in the western portion of the area generally known as the Western Tanana Flats to restore wildlife habitat productivity and diversity, and reduce the potential for large, intense wildland fires. Prescribed fire can quicken the restoration of fire as the primary force of disturbance in the boreal forests of this area, and reduce the expense, peril and severity of wildland fire in habitats allowed to mature due to past fire exclusion.

### **II PROBLEM STATEMENT**

The reduction in natural burning on the Tanana Flats due to past fire suppression efforts has reduced the forest's ability to support wildlife species needing early to mid-successional vegetative types, and has increased the likelihood of large, unmanageable wildland fires in the future.

### **III PROJECT GOALS**

- To improve habitat conditions for moose and other wildlife species dependent on early successional habitats.
- To reduce the potential for large, intense wildland fires.

### **IV PROJECT OBJECTIVES**

- Burn approximately 100,000 acres (33% of the planning area) during the next five years.
- Achieve a 75% reduction in the coniferous tree cover type within the burned area.
- Achieve a 10-fold increase in shrub and deciduous tree stem densities within the burned areas.
- Increase the nutrient regime of moose on the Tanana Flats to the point that the 5-year mean twinning rate among female moose  $\geq 3$  years old is at least 20%.
- Increase the nutrient regime of moose on the Tanana Flats to the point that the 5-year mean production of calves by 2-year old female moose is  $\geq 0$ .
- Increase the nutrient regime of moose calving on the Tanana Flats to the point that the 5-year mean weigh of short yearling moose increases to 163–207 kg

## V RISK ANALYSIS AND ASSESSMENT

### Management Summary and Risk Assessment

Instructions: Rank low (L) , medium (M), or high (H) on a subjective basis and put the average in the summary row with an explanation in the rationale portion.

Element	Risk	Potential Consequence	Technical Difficulty
Potential for escape	M	M	M
Number and dependence of activities	M	L	M
Values at risk	L	M	L
Fuels/fire behavior	H	M	M
Size of prescribed burn team	L	M	M
Magnitude of oversight/political activities	M	H	M
Fire treatment objectives	M	L	H
Environmental constraints	M	M	M
Safety	M	M	M
Ignition procedures/methods	L	L	M/H
Interagency problems	M	L	L
Project logistics	M	L	M
Special features inside fire area (cabins)	M	M	M
Smoke management	H	H	M
Other			
<b>Summary</b>	<b>M</b>	<b>M</b>	<b>M</b>

Rationale: Values at risk have been clearly identified and represent moderate difficulty in holding. Firing pattern will mitigate most holding problems. The primary risk is smoke management and the potential to cause problems in the Fairbanks area, including the airport and related tourist traffic. Prevailing winds are often blowing directly into Fairbanks and stable atmospheric conditions promote inversions (see Comment 14, pg. 4).

### Summary Complexity Rating

Risk	Overall rating	M
Potential Consequences	Overall rating	M
Technical Difficulty	Overall rating	M
Summary Complexity Determination		M

## **A. Complexity Element Comments:**

### **1. Potential for escape: moderate**

Escape means outside the Maximum Allowable Perimeter (MAP) (see Part II, Section III-G), which borders the Wood River north to the Tanana River, then west along the river to the Totatlanika River mouth, then south to the Rex Trail, east along the Rex Trail to Saint George Creek, and north to the Wood River. Perimeter outside the MAP includes approximately 60% limited, 10% modified, and 30% full protection level. The fire is not considered escaped if the unit being ignited unintentionally burns into an adjoining unit.

### **2. Number of dependence of activities: low to moderate**

Firing is the only risky sequence; technically moderate risk is due to aviation based firing operations. Aerial ignition should be conducted with a light helicopter.

### **3. Values at risk: low to moderate**

Very low values to units within the MAP on units 3, 4, 5, 7, 8, and 9. Timber value is identified west of unit 3 in Toghothele Timber Reserves. Cabins within or near units 1, 2, 5, and 6 primarily of low to moderate value.

### **4. Fuels/Fire behavior: moderate to high**

Large-scale burn can cause fire to advance rapidly and create own weather. Well thought out firing sequence and appropriate prescription will allow proper burn rates and intensity/severity.

### **5. Size of prescribed burn team: Low to moderate**

Burn areas are large, but limited holding forces and aerial ignition allow a moderate sized burn team organization.

### **6. Magnitude of oversight/Political activities: moderate to high**

The risk and difficulty are moderate, but consequences are high due to potential of smoking in Fairbanks, Fairbanks International Airport, and Eielson AFB. Risk of smoke over Gold King residence's may also have high political consequences.

### **7. Fire treatment objectives: low to high**

Consequences are low, risk is moderate due to weather changing and not getting desired fire effects. Technical difficulty is High due to large fire size and 100 plus miles of firing vs. burn window.

**8. Environmental constraints: moderate**

Balancing fire intensity/severity vs. fire effects objectives is moderately difficult due to large scale of burn units and variation in fuel types throughout each unit.

**9. Safety: moderate**

Limited ground forces, remote location, and sizable Limited Management Option areas bordering the MAP, plus excellent media announcements will pose few safety concerns.

**10. Ignition procedures/methods: low to moderate**

Aerial ignition with PSD module in strip or horseshoe firing pattern is easily done. Difficulty lies in no topographical terrain features to influence fire, so extensive firing is required.

**11. Interagency problems: low to moderate**

Because of different ownership, management responsibilities, and protection jurisdictions, coordination is needed for the MAP area. This is particularly important in the event of an escape onto Military lands.

**12. Project logistics: low to moderate**

Limited personnel are low consequence, but air support only requires moderate risk and difficulty.

**13. Special features inside the area moderate**

Special features within the MAP include four native allotments, and two cabins, all of which are along the Wood or Tanana rivers. There are also three cabins and one allotment near the MAP but outside the boundary.

**14. Smoke management: moderate to high**

Smoke management is the primary concern for this burn due to the high visibility and prevailing winds from the southwest. This could cause smoke to be a problem in the Fairbanks/North Pole area or Eielson AFB. Strict adherence to wind vectors, mixing heights, and smoke plume dispersal at various elevations is necessary. Inversion conditions must and will be avoided if forecast.

## **PART II. — RESOURCE ANALYSIS**

### **I FIRE TREATMENT GOALS**

- Ensure firefighter and public safety at all times during prescribed burn operations.
- Protect identified historical sites, private property and other values needing protection from the prescribed burns.
- Restore age diversity among aging vegetative types and thereby maintain or enhance wildlife habitat values for species needing early to mid-successional stages.
- Use prescribed fire to reduce the amount of contiguous, fire-prone forest fuels.
- Maintain or enhance wildlife use opportunities in an area close to human population centers in the Interior.
- Reduce the risk of unmanageable, expensive, and potentially dangerous wildland fires that could threaten adjacent communities, protected timber resources, and produce large volumes of smoke.

### **II FIRE TREATMENT OBJECTIVES**

- No injuries or loss of life.
- Prevent fire spread to identified historical sites, private property and other values needing protection.
- Prevent the spread of prescribed fires beyond the MAP unless authorized by an approved Wildland Fire Situation Analysis (WFSA).
- Burn the vegetative cover, to some extent, on 50-70% of the area within the outside perimeter of each prescribed burn.
- Produce burn characteristics sufficient to kill at least 50% of the black spruce trees occurring within the outside perimeter of each prescribed burn, excluding the unburned inclusions.
- Produce burn characteristics sufficient to kill at least 50% of the above ground stems of birch, aspen, poplar and willow occurring within the outside perimeter of each prescribed burn, excluding the unburned inclusions.

### **III. PHYSICAL DESCRIPTION**

#### **A. Location**

The planning area is situated immediately east of the communities of Nenana, Anderson and Clear, and approximately 24 miles southwest of Fairbanks in Interior Alaska (Appendix A).

## B. Topography

The area appears relatively flat, but actually drains north from an elevation of about 800 feet near the foothills of the Alaska Range to an elevation of about 400 feet near the Tanana River. It contains a myriad network of small streams. Wet areas are interspersed among the forest. Relatively minor changes in relief often greatly affect the local hydrology and subsequent vegetative patterns.

## C. Resources

Forests: Vegetation is diverse and occurs in an intricate mosaic of forest and bog habitats. Alder (*Alnus crispa*), aspen (*Populus tremuloides*), birch (*Betula papyrifera*), poplar (*Populus balsamifera*), black spruce (*Picea mariana*), white spruce (*Picea glauca*), Tamarack (*Larix laricina*) and several species of willow (*Salix* spp.) are amply represented.

Except for a narrow strip of land adjacent to the Tanana River, most of the planning area contains only scattered stands of commercial timber. The forest cover, for the most part, does not contain sawlog quality trees and currently has little commercial value.

No nationally or State designated threatened or endangered plant species, or plant species of special concern, have been documented in the planning area<sup>1</sup>.

Wildlife: The Tanana Flats are rich with wildlife. The extensive mosaic of vegetative types, and maize of streams and ponds, provides ideal habitat for many species of wildlife. The diversity of plant species and associations makes the flats one of the best locations in the Interior for wildlife. Some of the more common inhabitants include moose (*Alces alces*), caribou (*Rangifer tarandus*), wolves (*Canis lupus*), coyotes (*Canis latrans*), black bear (*Ursus americanus*), grizzly bear (*U. arctos*), wolverine (*Gulo luscus*), marten (*Martes americana*), mink (*Mustela vison*), ermine (*Mustela frenata*), red fox (*Vulpes fulva*), lynx (*Lynx canadensis*), red squirrels (*Tamiasciurus hudsonicus*), snowshoe hares (*Lepus americanus*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethica*), otter (*Lutra canadensis*), porcupine (*Erethizon dorsatum*), voles (*Microtus* sp.), ruffed grouse (*Bonasa umbellus*), spruce grouse (*Canachites canadensis*), sharp-tailed grouse (*Tympanuchus phasianellus*), northern goshawk (*Accipiter gentilis*), woodpeckers (*Picoides* sp.), Robin (*Turdus migratorius*), gray jay (*Perisoreus canadensis*), kingfishers (*Megaceryle alcyon*), chickadees (*Parus* sp.), and various waterfowl such as trumpeter swans (*Olor buccinator*), mallards (*Anas platyrhynchos*), pintails (*Anas acuta*), widgeon (*Mareca americanus*), and teal (*Anas carolinensis*).

The Tanana Flats are part of Game Management Unit 20A (Fig. 1). The Unit 20A moose population is an intensively studied, high-use resource. The unit currently has one of the highest moose densities for any equivalent-sized area in North America. Early winter moose density is about 2.2 moose/mi<sup>2</sup> overall, and about 2.8 moose/mi<sup>2</sup> in the ADF&G moose research study area (Fig. 1).

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<sup>1</sup> GVEA Northern Intertie Environmental Analysis, 4 December 1996, p. 3-12 per further reference to: Murray, D.F., and R. Lipkin. 1987. Candidate threatened and endangered plants of Alaska. UAF Museum.

During spring and summer, densities increase on the Tanana Flats when moose migrate from adjacent watersheds, resulting in moose numbers that are 2 to 4 times higher. Cow moose from the Chena and Salcha river drainages, the Alaska Range, and the White Mountains migrate to the Tanana Flats to calve and return in the fall. Moose densities are lowest on the Tanana Flats during winter.

Unit 20A is Alaska's most intensively managed area in terms of ADF&G costs to survey wildlife and reduce predation to promote increased moose and caribou numbers. This management focus has broad local support stemming primarily from a strong local tradition of hunting, awareness of the enhanced value of land with abundant wildlife, and gradual restrictions in hunting regulations elsewhere in Alaska. Approximately 1500–3000 hunters used Unit 20A annually since the late 1980s.

ADF&G hopes to maintain moose numbers at moderate to high levels without repeating the wolf control program (1976–1982) that restored moose numbers after the drastic decline in the early 1970s. Moose numbers have remained relatively stable at about 11,000 - 11,500 animals since 1991, which is well below the historic high observed during the 1960s. A priority is to keep the moose density from falling to densities where predation strongly limits human uses of moose. To achieve this management goal, habitat conditions for moose must be restored to some semblance of what they were before aggressive fire suppression during the 1960s through the 1980s deprived the area of the rejuvenating effects of burning.

Most of the forest cover in Unit 20A has not burned since the early 1940s. As a result, many shrub lands have converted to forest, and spruce has become a more predominant part of the forest cover. Common browse species are severely deformed by repeated heavy browsing or have grown beyond the reach of moose.

Research has shown that these degraded habitat conditions are clearly effecting moose in Unit 20A. Moose in Unit 20A are experiencing the poorest nutrient regime recorded for any continental wild moose population in North America. These effects include:

- Delayed age of first reproduction.
- Dramatically lower short yearling weights.
- Extremely low twinning rate.
- A minimum 20% decline in production since 1978.

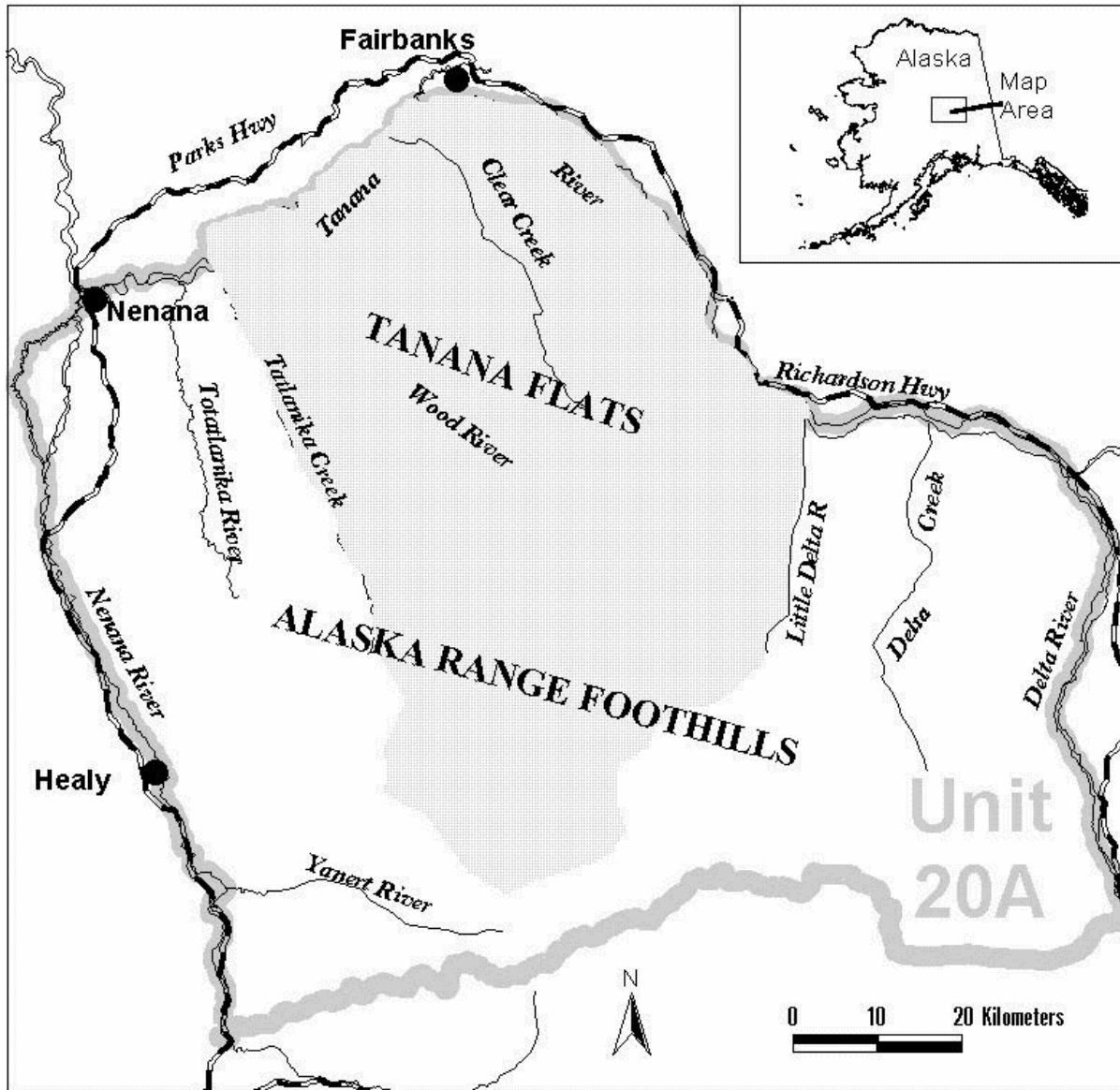


Figure 1. Game Management Unit 20A. Shaded portion is the study area for the ADF&G moose research project.



There are no threatened or endangered animal species in the burn plan area<sup>2</sup>. Although peregrine falcons (*Falco peregrinus*) can be found along the Tanana River, they frequent areas with bluff and rocky outcrops. These terrain features do not exist along the south bank of the Tanana River within the burn plan area. Eagle nests are also protected under the Eagle Protection Act. However, it is unlikely that eagle nests, if there are any, will be threatened by the planned prescribed burns, since fire spread into the white spruce stands along the Tanana and Wood Rivers is not anticipated.

The Tanana Basin Area Plan (ADNR, 1991) designated trumpeter swans as a species of concern. The land within the burn plan area is designated as critical habitat for the trumpeter swan. There is potential for firing operations and the burn itself to disturb swans. However, serious problems are not anticipated because swans nest only on the larger ponds/lakes, which are a wet environment, and nesting will have been completed by the time firing occurs.

Fish: The Tanana River, which is the northern boundary of the planning area, is classed as an anadromous fish stream. However, prescribed burning is not expected to reach the Tanana River because of wetter conditions near the river, and the intent to prevent fire spread into the Native allotments and commercial quality white spruce along the river.

The other major drainages in the burn plan area are the Wood River (east boundary), Totatlanika River (west boundary), and Tatlanika Creek (bisects the planning area). None of these are classified as anadromous fish streams. Resident populations of arctic grayling (*Thymallus arcticus*), northern pike (*Esox lucius*), round whitefish (*Prosopium cylindraceum*), and burbot (*Lota lota*) are expected in these streams.

#### **D. Human Use**

Hunting and trapping of wildlife are an important part of the lifestyles of people living near the western end of the Tanana Flats. A long history of use exists, especially by the native residents of the nearby village of Nenana.

Moose, in particular, are actively sought by hunters for food and recreation. They are important both as a subsistence resource for Native residents, and a food and recreational resource for other residents of the state. This resource is also used by non-resident hunters to some degree.

Most moose hunting in the burn plan area is done by boat due to lack of other access means. Boat access is limited to the Tanana and Wood Rivers, and short portions of the lower reaches of Tatlanika Creek and Totatlanika River. Some hunters gain access with small aircraft, but landing sites are few.

Ninety-five percent of those interviewed, during a 1984 survey of subsistence moose hunters in Nenana, indicated that they hunt moose in the area south of the Tanana River between the Wood River and the Totatlanika River<sup>3</sup>. However, some subsistence hunting

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<sup>2</sup> GVEA Northern Intertie Environmental Analysis, 4 December 1996, p. 3-20

<sup>3</sup> GVEA Northern Intertie Environmental Analysis, 4 December 1996, p. 3-28.

occurs in the northern portion of the burn plan area (Mitch Demientieff<sup>4</sup>, personal communication). The Toghotthele Corporation supports this plan, in part, because of the history of use of the area by Nenana residents, and recognition that burning benefits both moose and those who use them. Long-time residents of Nenana remember that moose hunting was easier several decades ago. Hunters used to be able to see further into the forest and shrub lands when they climbed up the river bank or up a tree (Mitch Demientieff, personal communication). Now, it is more difficult to find a moose in the thick forest cover that has developed in the absence of wildland fires.

## **E. Cultural and Historic Concerns**

Archaeological sites on state lands containing historic, prehistoric and archaeological resources are protected under the Alaska Historic Preservation Act (Alaska Statute 41.35). Similarly, sites on federal land and some Native lands are protected under the Archaeological Resources Protection Act of 1979 (PL 96-95).

The Alaska Heritage Resource Survey files were reviewed for references to known or suspected archaeological or historic sites within the burn plan area. None were found (Chuck Holmes<sup>5</sup>, personal communication). In light of this finding and the apparent absence of prior archaeological examinations, a pre-burn evaluation of the burn plan area was requested by the State Historic Preservation Office (SHPO). Numerous archaeological or historic sites have been identified on federal lands east of the Wood River, including 28 in the vicinity of the Wood River Buttes adjacent to the burn plan area<sup>6</sup>. Subsequently, field examinations were conducted on May 24, 2001, by the State Historic Preservation Office (SHPO) and the Tanana Chiefs Conference, Inc. (TCC) in the portions of the burn plan area most likely to contain cultural and/or historic values.

Helicopter over-flight of the burn plan area by the SHPO Archaeologist Chuck Holmes and ADF&G Project Leader Dale Haggstrom confirmed the absence of prominent land features that might be attractive to prehistoric people as hunting overlooks or camp sites. There is very little relief to the terrain on this portion of the Tanana Flats. A few very low hills (probably no more than 10 - 20 feet high) appear promising, but the present forest cover makes detection of prehistoric sites difficult. Observers did note that forest fuels were sparse on these low hills. The openness of the stand and presence of ground lichens on the tops of these hills suggests they are dry sites, and lead to speculation that they may be wind-blown deposits. The significance of this observation is that these sites are not likely to be subjected to severe burning under conditions selected for prescribed burning. Thus, the planned prescribed burning is not likely to have any significant impact on any archaeological remains that may exist on these sites, and will certainly have less impact than a naturally occurring wildland fire burning under conditions more suited to severe burning. Re-evaluation after burning may be useful, as removal of the vegetative mat by burning should make detection of possible prehistoric sites easier.

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<sup>4</sup> Life-long resident of Nenana and member of the Toghotthele Corporation Board of Directors.

<sup>5</sup> Archaeologist, State Historic Preservation Office, Anchorage.

<sup>6</sup> GVEA Northern Intertie Environmental Analysis, 4 December 1996, Appendix G.

A three-person monitoring team from TCC was also flown to selected allotments in the burn plan area on May 24, 2001. This team included Archaeologist Tom Gillispie, Fire Management Specialist Jim Bell, and Allotment Forester Jake Sprankle. The three allotments selected for review were the parcels judged to be most at risk from planned prescribed burning. A basic cultural resource documentation was performed, including a field map, building and feature descriptions, and extensive photographic documentation. Based on field work and subsequent information received, the TCC monitoring team concluded that the prescribed burns planned for the western Tanana Flats would pose only minimal threat to the allotments, if the burn plan were followed as revised and approved in 2001. Specifically, TCC concluded<sup>7</sup> that:

- The protection measures proposed in the Western Tanana Flats Prescribed Burn Plan are reasonable and prudent, and should protect allotments adjacent to Ignition Areas 1 and 6 from fire.
- All of the allotments adjacent to the 2001 ignition areas are reasonably defensible in the event of wildland fire.
- Of the three Native allotments immediately adjacent to Ignition Areas 1 and 6, only FF012615A contains structures that might qualify as historic properties.
- The terrain and vegetation surrounding the allotments are compatible with pre-fire fuel hazard treatment projects, and these projects will provide an additional measure of protection to the allotments.

## **F. Fire History**

Fire has historically maintained this habitat mosaic and lent age diversity to the vast variation provided by topography and hydrology. Most of the planning area was burned by a 720,000 acre fire that started in 1941 from ashes dumped by the Alaska Railroad near Clear. This fire overwintered in peat and continued burning during summer 1942, according to archived records at the BLM - Alaska Fire Service. However, effective fire control efforts since the 1950s have kept subsequent fire starts to a smaller size west of the Wood River. This allowed the habitat to age, reducing its ability to support the many wildlife species needing early to mid-successional vegetative types and reducing people's hunting effectiveness. Past fire suppression efforts also created a forest fuels management problem. The natural process of forest aging, in the absence of new disturbances from burning, produces vast areas of older, spruce dominated stands which readily burn under a wide variety of conditions.

Natural ignition from lightning is less frequent on the flats than in the surrounding hills, and provides fewer opportunities for naturally occurring fires to recreate younger habitat conditions. Lightning ignition often occurs during June when burning conditions are most extreme. Large, severe fires can result when ignition occurs amidst large expanses of fire prone, spruce-dominated stands during extreme burning conditions. These kinds of

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<sup>7</sup> National Historic Preservation Act, Section 110, Report No. 2001-04. Prepared by TCC Archaeologist Tom Gillispie on May 29, 2001, for the State Historic Preservation Office.

wildland fires are increasingly less acceptable in an area adjacent to population centers and in forests being managed for timber harvests. Prescribed burning allows managers to burn under conditions less likely to produce such a large burn and to burn when smoke will disperse away from the populated areas.

Between 1980 and 1988, managers developed cooperative fire management plans, which were later consolidated and updated into the Alaska Interagency Wildland Fire Management Plan<sup>8</sup>. Managers place their lands in one or more of the Plan's four wildland fire management options (Critical, Full, Modified, and Limited) prior to each fire season. The fire management option helps determine the appropriate management response when a wildland fire starts. The intent of this pre-season planning effort is to place the priority for suppression resources where fires pose the most threat to human life and property, and allow burning to accomplish land-use and resource management objectives where the threat to human life and property is more manageable.

The State of Alaska tried to get participating land owners and managers to change much of the existing Full and Modified management option areas (Appendix F) on the western Tanana Flats to Limited in 1996, since the surface land values do not seem to warrant such a high priority for suppression resources. The proposed changes have not yet been approved. Most of the remainder of the Tanana Flats and the Alaska Range Foothills have been placed in the Limited Management Option.

Placing more of the lands west of the Wood River in the Limited Management Option would have allowed wildland fires to restore the natural fire regime over a period of time and reduced the need for prescribed burning to meet land-use and resource management objectives. Planning for prescribed burns was initiated to provide a shorter-term solution for land and resource problems. Although prescribed burning has not occurred since initial approval of this prescribed burn plan in fall 1995, its presence proved invaluable during June 2001, when a wildland fire (Fish Creek Fire; fire number 111246) started east of the Parks Highway and spread eastward on the western Tanana Flats. Fire managers took aggressive action to suppress the fire where it threatened private property along the Parks Highway. However, the presence of an approved burn plan for the area east of the Totatlanika River allowed managers to manage the fire's eastern flank to meet habitat and fuels management objectives, and reduce suppression costs. Approximately three-fourths of the Fish Creek Fire falls within the prescribed burn planning area (Appendix B).

## **G. Maximum Allowable Perimeter**

The Maximum Allowable Perimeter (MAP) delineates the outermost boundaries within which prescribed fires may spread without need for suppression action. If a prescribed fire threatens to spread outside the established MAP and cannot be readily contained by assigned holding forces, contingency plans for an Escaped Fire will be implemented. The MAP for the Western Tanana Flats Prescribed Burn Plan is bounded on the north by the

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<sup>8</sup> Alaska Interagency Wildland Fire Coordinating Group. 1998. Alaska Interagency Wildland Fire Management Plan, Amended October 1998. 61 pp.

Tanana River, on the east by the Wood River and Saint George Creek, on the south by the Rex Trail, and on the west by the Totatlanika River and a portion of the sled road from Nenana to the Alaska Range foothills (Appendices A–D, F). Prescribed fires within this MAP will generally be allowed to spread naturally as determined by local weather, topography, hydrology and fuel types except as necessary to protect private property, specified timber resources and escape from the MAP. The MAP includes portions of T4S, R4-6W; T5S, R3-6W; T6S, R3-6W; T7S, R3-6W; and T8S, R3-6W. It encompasses approximately 285,785 acres (Table 1).

Twenty areas are identified (Appendix C) within the MAP for fire management purposes. These areas fall into three main categories (Table 1):

- **Ignition Units.** Nine areas are identified within the MAP for possible ignition, based on topographic features and fuel types. Collectively, the ignition units comprise about 90% of the planning area.
- **Protected Areas.** There are seven Native allotments within the MAP. They comprise 0.3 % of the prescribed burn planning area. Federal law requires protection of these private parcels. Reasonable effort will be made to prevent prescribed burning in adjacent areas from spreading into these areas. In some cases, it may become necessary to conduct manual ignitions to prepare control lines to protect structures or other identified values from an encroaching fire.
- **Other Areas.** Four other areas are identified within the MAP where burning is permissible under some conditions, but prescribed ignitions will not be undertaken because of nearby protection concerns. The areas in this category comprise about 10% of the planning area. Burning that results from either natural ignition (lightning), or fire spread from prescribed burning in adjacent ignition units, will be allowed and managed, if burn conditions and firefighting resources are adequate to protect identified values. Aerial and manual firing efforts may be used to direct fire spread resulting from either natural ignition or encroachment from adjacent ignition units. Manual firing may be used to prepare control lines around structures or other values identified for protection.

Table 1. Fire management areas identified within the Maximum Allowable Perimeter of the Western Tanana Flats Prescribed Burn Plan.

<u>Category</u>	<u>Number</u>	<u>Acres</u>	<u>Percent</u>
<b>Allotments</b>	7	700	0.3
<b>Ignition Units</b>	9	256,620	89.7
<b>Other Areas</b>	4	28,465	10.0
<b>Totals Combined:</b>	20	285,785	100.0

## H. Ignition Units

Ignition Units are delineated during the planning process to offer firing alternatives for the Burn Boss during field implementation of the burn plan. These alternatives may make it easier for the Burn Boss to incrementally tackle a large firing operation, or adjust the day's firing schedule to accommodate localized differences and get better results. The amount of firing within ignition units or the number of ignition units ultimately fired, will depend on funds available, cost efficacy of firing operations and weather conditions. Additional units may be described in future supplements to this plan if additional burning is desired to meet resource or fire management needs and supplemental funding becomes available.

Numbering is only for unit identification and *does not* indicate priority among ignition units or an intended ignition sequence. Likewise, ignition unit boundaries are intended to only show the general areas where ignition will be focused. It is not the intent that all firing and resultant burning be strictly confined to these units. Firing and fire spread will be affected by localized differences in weather, topography, hydrology and fuel types (vegetative differences). Slop-overs (spot fires or fire extensions beyond the unit boundary) may be expected in any one of the ignition units, but fire spread will be contained within the MAP. Holding forces need to be sufficient to hold the fire within the MAP.

It is acceptable, in terms of the project objectives, for burning ignited within one or more ignition units to spread into adjacent areas as long as identified values can be protected and there is reason to believe the fire can be kept within the MAP of the prescribed burn planning area. Other factors not related to the project objectives, such as smoke concerns, undesirable burning conditions, or higher priority needs for firefighting resources, may prompt an earlier decision to contain fire spread.

Fires ignited under the conditions prescribed in this plan are expected to affect the vegetation on 50–70% of the land area within the final burn perimeter of each prescribed fire, i.e. we expect some areas may not burn. However, it is acceptable for all the area within the final burn perimeter to be effected by fire. We expect the impact of burning on the vegetation to vary considerably across any given burn area because of localized differences in vegetation, topography, moisture conditions and weather.

Nine areas, that do not contain values needing protection from fire, have been identified as ignition units in the Western Tanana Flats Prescribed Burn Plan (Appendix C). These are described below:

Ignition Unit 1 is located in the northeast corner of the MAP. The center of this 24,920 acre unit is approximately 26.8 miles southwest of the Fairbanks International Airport, 17.0 miles east of the Nenana airport, 25.0 miles northeast of the Clear/Anderson airstrip, and 30.0 miles northwest of the Gold King airstrip. It includes most of T4S, R5W; the southeastern portion of T4S, R4W; and the northeastern 1/4 of T5S, R5W.

Ignition Unit 1 is bounded by the Wood River on the east and Tatlanika Creek on the west. The northern boundary will be a planned burn-out line through open areas about

1 - 2 miles south of the Wood River to exclude an area near the river containing privately-owned land and white spruce stands with potential as timber. Wet areas, sedge meadows and shrub-dominated regrowth from a 1957 wildland fire will form the southern boundary.

Ignition Unit 2 is located in the northwest corner of the MAP. The center of this 15,531 acre unit is approximately 32.3 miles southwest of the Fairbanks International Airport, 10.6 miles east of the Nenana airport, 20.1 miles north-northeast of the Clear/Anderson airstrip, and 32.3 miles northwest of the Gold King airstrip. It includes the southeast half of T4S, R6W; the southwest portion of T4S, R5W; and the northern 1/4 of T5S, R6W.

Ignition Unit 2 is bounded by Tatlanika Creek on the east and by the Totatlanika River on the west. The northern boundary will be a planned burn-out line through open areas about 1 - 2 miles south of the Wood River to exclude an area near the river containing privately-owned land and white spruce stands with potential as timber. Wet areas and sedge meadows will form the southern boundary.

Ignition Unit 3 is located in the southwest corner of the MAP. The center of this 32,484 acre unit is approximately 41.0 miles southwest of the Fairbanks International Airport, 24.3 miles southeast of the Nenana airport, 17.9 miles east of the Clear/Anderson airstrip, and 18.7 miles west of the Gold King airstrip. It includes most of T7S, R5W; the southern edge of T6S, R5W; the southwest corner of T7S, R5W; the northwest 1/4 of T8S, R4W; and the northern edge of T8S, R5W.

Ignition Unit 3 is bounded by the Rex Trail on the south and the Totatlanika River on the east. The western boundary follows an un-named creek, wet areas and sedge meadows through the eastern portion of a 27-year old, 8,965 acre wildland fire. Wet areas and sedge meadows will form the northern boundary.

Ignition Unit 4 is located in the southeast quarter of the MAP. The center of this 73,695 acre unit is approximately 35.1 miles south-southwest of the Fairbanks International Airport, 27.3 miles southeast of the Nenana airport, 24.9 miles east of the Clear/Anderson airstrip, and 14.9 miles northwest of the Gold King airstrip. It includes several sections in the SW1/4 of T5S, R4W; the eastern 1/4 of T6S, R5W; most of T6S, R4W; the western 1/2 of T6S, R3W; the western 1/3 of T7S, R3W; most of T7S, R4W; the northeastern 1/4 of T8S, R4W; and about 2 sections in the northwest corner of T8S, R3W.

Ignition Unit 4 is bounded by the Rex Trail on the south, Tatlanika Creek on the west, and Fish Creek on the east. The northern boundary is the least distinct. It is defined by a change in fuel type where the black spruce forest cover in the Unit 4 gives way to shrub dominated stands and open sedge meadows. The most obvious change in fuel types occurs where a 12,765 acre wildland fire occurred in 1957 in Unit 9. The eastern half of the north boundary consists of less distinct openings and wet areas between Ignition Units 4 and 6.

Ignition Unit 5 is located in the southeast corner of the MAP. The center of this 28,396 acre unit is approximately 40.2 miles south-southwest of the Fairbanks International Airport, 35.4 miles east-southeast of the Nenana airport, 29.9 miles east of the

Clear/Anderson airstrip, and 6.6 miles northwest of the Gold King airstrip. It includes approximately 3 sections in the southern half of T6S, R3W; the center 1/3 of T7S, R3W; and most of the northern 2/3 of T8S, R3W.

Ignition Unit 5 is bounded by Saint George Creek on the east, the Rex Trail on the south, Fish Creek on the west, and the Wood River on the north.

Ignition Unit 6 is centrally located along the east boundary of the MAP. The center of this 13,723 acre unit is approximately 27.6 miles south-southwest of the Fairbanks International Airport, 24.2 miles east-southeast of the Nenana airport, 27.1 miles east-northeast of the Clear/Anderson airstrip, and 21.4 miles north-northwest of the Gold King airstrip. It includes most of the eastern half of T5S, R4W and 1 -2 sections each in the southwest corner of T4S, R4W; the southwest corner of T5S, R3W; the northwest corner of T6S, R3W; and the northeast corner of T6S, R4W.

Ignition Unit 6 is bounded by the Wood River on the north and east. and by the Totatlanika River on the west. The western and southern boundaries follow wet areas, sedge meadows and areas of less flammable shrub and forest fuels to skirt the predominately spruce forest type within the unit.

Ignition Unit 7 is centrally located in the MAP. The center of this 32,618 acre unit is approximately 34.0 miles southwest of the Fairbanks International Airport, 16.4 miles east-southeast of the Nenana airport, 18.4 miles east-northeast of the Clear/Anderson airstrip, and 25.5 miles northwest of the Gold King airstrip. It includes the eastern 1/3 of T5S, R6W; the western 1/2 of T5S, R5W; most of the western 2/3 of T6S, R5W; and about 1 section in the northeast corner of T6S, R6W.

Ignition Unit 7 is bounded by Tatlanika Creek on the east and an un-named creek on the west. The northern and southern boundaries will follow wet areas, sedge meadows and areas of less flammable shrub and forest fuels to skirt the more flammable spruce stands within the unit.

Ignition Unit 8 is centrally located along the western boundary of the MAP. The center of this 19,585 acre unit is approximately 37.1 miles southwest of the Fairbanks International Airport, 12.6 miles southeast of the Nenana airport, 14.7 miles northeast of the Clear/Anderson airstrip, and 29.3 miles west-northwest of the Gold King airstrip. It includes about one-half of T5S, R6W and about one-half of T6S, R6W.

Ignition Unit 8 is bounded by the Totatlanika River on the west and an un-named creek on the east. The northern and southern boundaries will follow wet areas, sedge meadows and areas of less flammable shrub and forest fuels to skirt the more flammable spruce stands within the unit.

Ignition Unit 9 is centrally located in the MAP. The center of this 15,668 acre unit is approximately 30.1 miles southwest of the Fairbanks International Airport, 20.0 miles east-southeast of the Nenana airport, 23.1 miles east-northeast of the Clear/Anderson airstrip, and 23.6 miles north-northwest of the Gold King airstrip. It includes most of the



eastern half of T5S, R5W; most of the western half of T5S, R4W; and about 1 section in the northeast corner of T6S, R5W.

Ignition Unit 9 is bounded by Tatlanika Creek on the west. The northern, eastern and southern boundaries follow wet areas, sedge meadows, and areas of less flammable shrub and forest fuels adjacent to the neighboring units.

## I. Land Ownership

Over three-fourths of the land within the MAP is state owned or selected (Table 2, Appendix D). The remaining one-quarter is Native owned or selected (Toghotthele Corporation). Several small private parcels, including native allotments, are also located along the Tanana River and the Wood River within the MAP.

Table 2. Summary of land ownership within the Maximum Allowable Perimeter of the Western Tanana Flats Prescribed Burn Plan.

<u>Category</u>	<u>Estimated Size (acres)</u>	<u>Percent of total area within MAP</u>
<b>State of Alaska</b>	217,876	76.2
<b>Toghotthele Corporation</b>	67,209	23.5
<b>Native Allotments</b>	<u>700</u>	<u>0.3</u>
<b>All Areas Combined</b>	285,785	100.0

Most of the state land is classified for wildlife habitat and public recreation. However, a strip along the Tanana River is classified for forestry purposes. Similarly, the Toghotthele Corporation has identified potentially valuable timber stands on its lands (Appendix E). The land ownership status, for each of the 20 fire management areas (Appendix C) identified within the MAP, is described below and summarized in Table 3:

Area 1 (Ignition Unit 1). State owned land, classified for wildlife habitat and public recreation, comprises 91% of this unit. The remaining land (9%), located along the Wood River on the east side of the unit, has been interim conveyed to the Toghotthele Corporation, pending survey.

Area 2 (Ignition Unit 2). The state owns all the land in this unit. The land is classified for wildlife habitat and public recreation.

Area 3 (Ignition Unit 3). State owned land, classified for wildlife habitat and public recreation, comprises 95% of this unit. Most of the remaining land (5%) has been interim conveyed to the Toghotthele Corporation. Toghotthele owned lands are located along in a band across the northern end of the unit and at the southwest corner of the unit. There is also a one-half section (320-acre) municipal selection by the Denali Borough (ADL 415805) in the extreme southeast corner of this unit where Tatlanika Creek and the Rex Trail meet.

Area 4 (Ignition Unit 4). State owned land, classified for wildlife habitat and public recreation, comprises 69% of this unit. The remaining land (31%) has been interim conveyed to the Toghotthele Corporation. Toghotthele owned lands are located in an east-west band across the middle of the unit and border on the Wood River along the east side of the unit. There is also a one-half section (320-acre) municipal selection by the Denali Borough (ADL 415805) in the extreme southwest corner of this unit where Tatlanika Creek and the Rex Trail meet.

Area 5 (Ignition Unit 5). State owned land, classified for wildlife habitat and public recreation, comprises 94% of this unit. The remaining land (6%) has been interim conveyed to the Toghotthele Corporation. Toghotthele owned lands are located at the northern end of the unit and border on the Wood River.

Area 6 (Ignition Unit 6). State owned land, classified for wildlife habitat and public recreation, comprises 31% of this unit. The remaining land (69%) has been interim conveyed to the Toghotthele Corporation. Toghotthele owned lands are located along the eastern side of the unit and border on the Wood River.

Area 7 (Ignition Unit 7). State owned land, classified for wildlife habitat and public recreation, comprises 80% of this unit. The remaining land (20%), located in an east-west band across the southern end of the area, has been interim conveyed to the Toghotthele Corporation.

Area 8 (Ignition Unit 8). State owned land, classified for wildlife habitat and public recreation, comprises 92% of this unit. The remaining land (8%), located in the southwest corner of the area, has been over selected by the Toghotthele Corporation.

Area 9 (Ignition Unit 9). State owned land, classified for wildlife habitat and public recreation, comprises 95% of this unit. The remaining land (5%), located in the northeast corner of the area, has been interim conveyed to the Toghotthele Corporation.

Area 10. Allotment FF012615A.

Area 11. Allotment FF12615D.

Area 12. Allotment FF013062.

Area 13. Allotment FF012615B.

Area 14. Allotment F000357.

Area 15. Allotment F000828.

Area 16. Allotment F000412.

Area 17. This area surrounds allotment FF012615A (Area 10). The land in this area is owned (interim conveyance) by the Toghotthele Corporation. Area 17 is bordered on three sides by Area 6; the east side borders on the Wood River.

Area 18. This area surrounds allotment FF12615D (Area 11). The land in this area is owned (interim conveyance) by the Toghotthele Corporation. Area 18 is bordered by Area 1 on the west and north, by Area 9 on the south, and by Area 6 and the Wood River on the east.

Area 19. The land in this area is state owned. Most of the state owned land is classified for forestry uses because of the presence of commercial quality white spruce stands. The western portion of the area is part of the Tanana Valley State Forest. Area 19 surrounds five private parcels (allotments F000412, F000828, F000357, FF012615B, and FF013062) that total approximately 613 acres.

Area 20. State owned land, classified for wildlife habitat and public recreation, comprises 16% of this area. The state owned land is located along the northern, eastern and southern boundaries of the area. The remaining land (84%) has either been interim conveyed to the Toghotthele Corporation or over selected by the Corporation. The interim selected land comprises most of the area and is located in its center. The over selected land is located in the northwest corner of the area. Commercial grade timber belonging to the Toghotthele Corporation occurs along the Totatlanika River, which is the western boundary of the area (Appendix E).

Table 3. Land ownership status within the Maximum Allowable Perimeter of the Western Tanana Flats Prescribed Burn Plan.

Fire Management Area	State of Alaska		Toghotthele Corporation		Native Allotments		All Ownerships Combined	
	Acres	% of Unit	Acres	% of Unit	Acres	% of Unit	Total Acres	% of MAP
<b>Ignition Units:</b>								
1	22,713	91.1	2,207	8.9	0	0.0	24,920	8.7
2	15,531	100.0	0	0.0	0	0.0	15,531	5.4
3	30,928	95.2	1,556	4.8	0	0.0	32,484	11.4
4	50,793	68.9	22,902	31.1	0	0.0	73,695	25.8
5	26,821	94.4	1,574	5.6	0	0.0	28,396	9.9
6	4,248	31.0	9,475	69.0	0	0.0	13,723	4.8
7	26,023	79.8	6,595	20.2	0	0.0	32,618	11.4
8	18,064	92.2	1,522	7.8	0	0.0	19,585	6.8
9	<u>14,951</u>	95.4	<u>717</u>	4.6	<u>0</u>	0.0	<u>15,668</u>	<u>5.5</u>
Subtotals:	210,072		46,548		0		256,620	89.7
<b>Protected Areas:</b>								
10 – 16	0	0	0	0	700	100.0	700	0.3
<b>Other areas:</b>								
17	1	0.1	495	99.9	0	0.0	496	0.2
18	0	0.0	441	100.0	0	0.0	441	0.1
19	4,162	100.0	0	0.0	0	0.0	4,162	1.5
20	<u>3,641</u>	15.6	<u>19,725</u>	84.4	<u>0</u>	0.0	<u>23,366</u>	<u>8.2</u>
Subtotals:	7,804		20,661		0		28,465	10.0
TOTALS:	217,876		67,209		700		285,785	100.0

Adjacent landowners include the U.S. Army (Fort Wainwright Military Reservation located east of the Wood River), U.S. Air Force (Clear Missile Early Warning Station located in the extreme southwest corner of the Tanana Flats), National Park Service (Denali National Park and Preserve located about 25 miles southwest of the Tanana Flats), numerous private holdings along the Parks highway west of the flats, state land disposals near Windy Creek and Gold King in the Alaska Range foothills, and state land north and south of the flats (Appendix D). Information on the size, ownership, location and status of the various small privately-owned land parcels found either within or adjacent to the burn plan's MAP is provided in Appendix K.

## **J. Values Identified For Protection**

Values identified for protection within, or adjacent to, the 20 fire management areas in the prescribed burn planning area (Appendix C) are described below. Additional information for each item or site is provided in Appendix K.

Seven Native allotments occur within the MAP for the Western Tanana Flats Prescribed Burn Plan (Areas 10 - 16, below). Three others occur just outside the MAP. All Native allotments are in full protection status per federal law. This fire protection status cannot change unless authorized by the allotment owner(s). Reasonable effort will be made to prevent prescribed burning in adjacent areas from spreading onto the Native allotments. In some cases, it may become necessary to conduct manual ignitions to prepare control lines to protect structures or other identified values from an encroaching fire.

Area 1 (Ignition Unit 1). This area contains no values needing protection from fire. The closest concerns are allotments F000357, F000418, FF012615B, and FF013062, and state-owned commercial white spruce stands, located to the north in Area 19, and allotment FF12615D, located to the southeast in Area 18. Structures are known to exist on allotments F000357, FF012615B and FF12615D. A cabin of unknown status is also thought to exist on the west side of the Wood River in Area 1 at map coordinates 64° 36' 40" latitude and 148 32' 17" longitude.

Area 2 (Ignition Unit 2). This area contains no values needing protection from fire. The closest concerns are allotments F000412, F000828, F000357, and FF012615B, and state-owned commercial white spruce stands, located to the north in Area 19, and allotments FF12615C and F035085, located to the west just outside the MAP. Structures are known to exist on allotments F000357 and FF012615B.

Area 3 (Ignition Unit 3). This area contains no values needing protection from fire. The closest concern is a permitted cabin site (ADL 412049) along the west bank of Tatlanika Creek just south of the Rex Trail at the extreme southeast corner of the unit.

Area 4 (Ignition Unit 4). This area contains no values needing protection from fire. The closest concern is allotment FF012615A, located in Area 17 about 1.5 miles north of this unit.

Area 5 (Ignition Unit 5). This area contains no values needing protection from fire. The only structure known to exist within Area 5 is a trapping cabin built in trespass on state-owned land (Appendix M). The closest concerns outside Area 5 are private parcels located approximately 2 miles to the east and outside of the MAP. Saint George Creek and Gold King Creek lie between Area 5 and the private parcels.

Area 6 (Ignition Unit 6). This area contains no values needing protection from fire. The closest concerns are allotments FF012615A, located in Area 17, and FF12615D, located in Area 18 in the northwest and southeast corners of the unit, respectively.

Area 7 (Ignition Unit 7). This area contains no values needing protection from fire and it is surrounded by other ignition units that do not contain values needing protection from

fire. The closest concern is allotment F035085, located outside the MAP and about 3 miles northwest of Area 7. A burn in Area 7 would have to spread area 2 and the Totalanika River to reach allotment F035085.

Area 8 (Ignition Unit 8). This area contains no values needing protection from fire. The closest concerns are allotment F035085, located outside the MAP and about 0.5 miles northwest of Area 8, and commercial timber stands, located along the Totalanika River south of Area 8. The timber belongs to the Toghotthele Corporation and is located in Area 20 and the adjacent area immediately west of the MAP.

Area 9 (Ignition Unit 9). This area contains no values needing protection from fire. The closest concerns are allotments FF12615D, located in Area 18 at the northeast corner of Area 9, and FF012615A, located in Area 17 about 4 miles southeast of Area 9 on the east side of Area 6.

Areas 10. Native allotment FF012615A. A pedestrian survey by TCC on May 24, 2001, revealed the remnants of a small one room log cabin, a single room log shed, four log dog housed, and an outhouse. The roofs on all of the structures except the cabin are collapsed and largely decayed. The cabin roof is intact; however, the front wall of the structure is partially collapsed. Debris found in the cabin and the surrounding area suggests that this camp was abandoned during the 1970s. Background research by TCC revealed that the original owner, now deceased, established a trap line in this area during the 1940s. This site is probably eligible for inclusion on the National Register of Historic Places though it has not yet been nominated.

Areas 11. Native allotment FF12615D. A pedestrian survey by TCC on May 24, 2001, revealed the presence of a fairly modern cabin on this allotment. The single room log cabin is in excellent condition and is virtually unweathered. Calendars and periodicals found inside the cabin demonstrate that it was in use during 1987 and 1992. This is confirmed by manufactures and debris found in and around the structure.

Areas 12. Native allotment FF013062. An aerial reconnaissance by TCC on May 24, 2001, confirmed that this property does not contain any structures, historic or otherwise, that might be affected by fire.

Areas 13. Native allotment FF012615B. There is a structure on this allotment.

Areas 14. Native allotment F000357. There is a structure on this allotment.

Areas 15. Native allotment F000828.

Areas 16. Native allotment F000412.

Area 17. This 542 acre area was delineated around the 47-acre allotment FF012615A (Area 10), using changes in fuel types as depicted on satellite imagery. An uninhabited cabin with historic significance is located on this allotment. Most of the land around the allotment is Toghotthele owned (interim conveyance). Area 17 is bordered on three sides by Area 6; the east side borders on the Wood River. Prescribed aerial ignitions are not planned in Area 17, but burning that results from either natural ignition (lightning), or

fire spread from prescribed burning in adjacent ignition units, will be allowed and managed, if burn conditions and firefighting resources are adequate to protect the allotment. Aerial and manual firing efforts may be used to direct fire spread resulting from either natural ignition or encroachment from adjacent ignition units. Manual firing may be used to prepare control lines around values identified for protection.

Area 18. This 482-acre area was delineated around the 41-acre allotment FF12615D (Area 11) and its associated structures, using changes in fuel types as depicted on satellite imagery. Area 18 is bordered on the east by the Wood River. Prescribed aerial ignitions are not planned in Area 18, but burning that results from either natural ignition (lightning), or fire spread from prescribed burning in adjacent ignition units, will be allowed and managed, if burn conditions and firefighting resources are adequate to protect the allotment and its associated structures. Aerial and manual firing efforts may be used to direct fire spread resulting from either natural ignition or encroachment from adjacent ignition units. Manual firing may be used to prepare control lines around values identified for protection.

Area 19. This 4,775-acre area contains allotments F000412, F000828, F000357, FF012615B, and FF013062. These private parcels total approximately 613 acres. Structures are known to exist on allotments F000357 and FF012615B. The land around the allotments is state owned and classified for its commercial timber value. The Tanana and Wood Rivers form its northern border. Prescribed aerial ignitions are not planned in Area 19, but burning that results from either natural ignition (lightning), or fire spread from prescribed burning in adjacent ignition units, will be allowed and managed, if burn conditions and firefighting resources are adequate to protect the private parcels and commercial timber. Aerial and manual firing efforts may be used to direct fire spread resulting from either natural ignition or encroachment from adjacent ignition units. Manual firing may be used to prepare control lines around values identified for protection.

Area 20. Commercial grade timber occurs along the Totatlanika River, which is the western boundary of the unit. The Toghotthele Corporation wants these stands protected from fire for future harvest, but burning can occur elsewhere in the unit (Edna Hancock<sup>9</sup>, personal communication). Prescribed ignitions are not planned in Area 20, but burning that results from either natural ignition (lightning), or fire spread from prescribed burning in adjacent ignition units, will be allowed and managed, if burn conditions and firefighting resources are adequate to protect the commercial timber stands along the Totatlanika River. Aerial and manual firing efforts may be used to direct fire spread resulting from either natural ignition or encroachment from adjacent ignition units. Manual firing may be used to prepare control lines around values identified for protection.

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<sup>9</sup> President, Toghotthele Native Corporation, Nenana.

## **K. Values that will not be protected**

The State *will not* provide fire protection for cabins and other structures that are not legally authorized (i.e., "trespass cabins") on state-owned land. The State also *will not* take suppression action on any fire, whether management-ignited (prescribed), naturally-caused, or arson-caused, solely because it poses a threat to a trespass cabin. Legally authorized structures (i.e., those registered under permit with the ADNR, Division of Mining, Land and Water) are identified in Appendix K. All other structures discovered during prescribed burning on state-owned land will be presumed in trespass. Trespass cabins identified during this planning process are shown in Appendix M.

## **L. Preburn Considerations**

Approval for Open Burning will be obtained from the State of Alaska, Department of Environmental Conservation prior to ignition and attached to this plan (Appendix I).

A Land Use Permit for burning on state-owned land will be obtained from the State of Alaska, Department of Natural Resources, Division of Mining, Land and Water prior to ignition and attached to this plan (Appendix J). A similar permit is not required for burning on Toghotthele Corporation land. Approval of this plan by Ms. Edna Hancock, President, Toghotthele Corporation, grants permission to burn on Corporation land as long as identified commercial timber stands near the Totatlanika River are protected (see Section J, above, and Appendices E and K).

The onsite preparation needs for the values identified for protection in Section J, above, and Appendix K, are described in Appendix L.

BIA funds have been requested by TCC for fire protection and hazardous fuels reduction on Native allotments within or adjacent to the MAP of the burn plan. It is important to note that prescribed burning in the planning area is not contingent on completion of hazard fuel treatments on the allotments. To attempt to keep state costs down if allotment protection measures are not been funded by the BIA, the DOF will employ a more conservative aerial firing plan and pre-position equipment and/or crews for possible response if allotments are threatened by fire spread.

The USDA's Pacific Northwest Research Station has expressed interest in laying transects for smoke management and fuels consumption data.

A portable Remote Automated Weather Station (RAWS) will be placed on a representative site prior to ignition.

If ignition is expected to occur when the surface wind vector is forecast to be from 045 to 075 degrees, the burn boss will prepare a smoke dispersal prediction prior to ignition and document the factors intended to mitigate potential smoke impacts in the Fairbanks metropolitan area. Factors may include, but are not limited to, a forecast change in surface wind direction during the burn, planned use of a firing pattern designed to transport smoke to higher altitudes, the presence of upper level winds blowing away from populated areas, and a forecast for rain in the burn area following completion of firing.



An aerial reconnaissance will be completed prior to ignition to check for presence of people in the selected ignition unit(s). People observed in the area slated for firing will be informed about the impending burn effort and asked to leave the area. Aerial ignition will not commence until the Burn Boss is satisfied that all people not involved in the burn operation are clear of the intended ignition area and adjacent areas immediately threatened by fire spread.

## PART III — FIRE PRESCRIPTION AND ENVIRONMENTAL PARAMETERS

### I. SCHEDULE

	Time Intervals
<b>A. Ignition Window</b>	June 15 through October 15
<b>B. Anticipated Ignition Duration</b>	2–3 days in each unit
<b>C. Anticipated Burn Duration</b>	14 days
<b>D. Time of Ignition</b>	1200–2400 hours <u>daily</u>

### II. BURNING PRESCRIPTION

#### A. Weather Conditions Range and Fuel Parameters

Parameter	<u>Acceptable Prescription Range</u>		
	Low	High	Desired
<b>Temperature (o F)</b>	60	80	72
<b>Relative Humidity (%)</b>	42	25	33
<b>Mid-flame Wind Speed (MPH)</b>	2	10	5
<b>Wind Direction</b>	Any direction acceptable		
<b>FFMC (No Units)</b>	87	94	91

#### B. Fire Behavior Characteristics

The Canadian Forest Fire Behavior Prediction (FBP) System was used extensively in preparing this plan. It is a systematic method of assessing wildland fire behavior potential using a series of mathematical equations related to wind, fuel moisture, and topographical conditions for fuel types. Fire behavior predictions are intended to assist in decision-making, and are not a substitute for experience, sound judgment, or observations of actual fire behavior.

The predicted fire behavior characteristics for the acceptable prescription range are shown below for the fuel types found in the planning area. The associated fire behavior worksheets are shown in Appendix Z.

**Fuel Type C-2 Boreal Spruce.** Boreal spruce, moderately well stocked black spruce stands on both upland and lowland sites. Continuous shrub with low to moderate downed woody fuels. Continuous feather moss and deep compacted organic layer.

<b>CFFDRS Model C-2</b>	<b><u>Estimated Behavior Range</u></b>		
	<b>Low</b>	<b>High</b>	<b>Desired</b>
<b>Rate of Spread (Chain/Hr) Head</b>	12	134	42
<b>Rate of Spread (Chain/Hr) Flank</b>	8	23	14
<b>Rate of Spread (Chain/Hr) Back</b>	6	6	7
<b>Crown Fraction Burn (%) Head</b>	51	100	95
<b>Crown Fraction Burn (%) Flank</b>	32	78	56
<b>Crown Fraction Burn (%) Back</b>	20	16	24
<b>Fire Intensity (Btu/ft/sec) Head</b>	1,368	16,468	5,021
<b>Fire Intensity (Btu/ft/sec) Flank</b>	882	2,656	1,548
<b>Fire Intensity (Btu/ft/sec) Back</b>	637	573	715

**Fuel Type O-1b.** Continuous standing grass, sparse or scattered shrubs and down woody fuel.

<b>CFFDRS Model O-1b</b>	<b><u>Estimated Behavior Range</u></b>		
	<b>Low</b>	<b>High</b>	<b>Desired</b>
<b>Rate of Spread (Chain/Hr) Head</b>	3.1	42	12
<b>Rate of Spread (Chain/Hr) Flank</b>	1.0	4.5	2
<b>Rate of Spread (Chain/Hr) Back</b>	1.4	1.3	1.6
<b>Fire Intensity (Btu/ft/sec) Head</b>	41	544	156
<b>Fire Intensity (Btu/ft/sec) Flank</b>	13	58	25
<b>Fire Intensity (Btu/ft/sec) Back</b>	19	16.5	21

**Fuel-Type C-1 Spruce-Lichen.** Open black spruce with dense stands. Very sparse herb/shrub cover and down woody fuels, tree crowns extend to ground. Organic layer shallow or absent, uncompacted. Drained upland sites.

CFFDRS Model C-1	<u>Estimated Behavior Range</u>		
	Low	High	Desired
Rate of Spread (Chain/Hr) Head	0.3	107	8.4
Rate of Spread (Chain/Hr) Flank	0.2	17	2.4
Rate of Spread (Chain/Hr) Back	0	0	0.1
Crown Fraction Burn (%) Head	0	100	26
Crown Fraction Burn (%) Flank	0	63	0
Crown Fraction Burn (%) Back	0	0	0
Fire Intensity (Btu/ft/sec) Head	12	6,733	379
Fire Intensity (Btu/ft/sec) Flank	6	952	95
Fire Intensity (Btu/ft/sec) Back	2	1.4	2.5

**Fuel Type C-1+.** Obtained by juicing up the C-1 model to make it hotter. At the high end it is as hot as C-2, but spreads like C-1. This is possibly a little slow at the bottom end. Procedures activate the Foliar MC module and Advanced Module – Input the latitude, longitude and altitude into FMC. Then get the live crown height to two feet and the crown fuel load to 0.8 lbs/ft<sup>2</sup>.

CFFDRS Model C-1+	<u>Estimated Behavior Range</u>		
	Low	High	Desired
Rate of Spread (Chain/Hr) Head	0.3	106	8.4
Rate of Spread (Chain/Hr) Flank	0.2	17.2	2.4
Rate of Spread (Chain/Hr) Back	0	100	46
Crown Fraction Burn (%) Head	0	73	15
Crown Fraction Burn (%) Flank	0	0	0
Crown Fraction Burn (%) Back	0	0	0
Fire Intensity (Btu/ft/sec) Head	12	12,500	772
Fire Intensity (Btu/ft/sec) Flank	6	2,137	135
Fire Intensity (Btu/ft/sec) Back	1.6	1.4	2.5

### **III. IGNITION METHODS**

The preferred method is via aerial ignition devices (AID). Under most conditions, the most cost-effective AID would be to use ping-pong ignition canisters. However, if the burn is conducted during low end prescription parameters, the most cost-effective method would be to use a helitorch to create a series of flanking fires by flying patterns into the wind. Pre-established patterns may be altered by the burn boss as the burn progresses based on observed fire behavior.

If ignition is expected to occur when the surface wind vector is forecast to be from 045 to 075 degrees (towards Fairbanks), firing will be conducted in a pattern designed to produce and maintain a convection column strong enough to lift smoke above the mixing height where transport winds can aid smoke dispersion. Ping-Pong Sphere Dispenser and Helitorch aerial ignition devices may be used alternatively or simultaneously to prevent column collapse during the firing process and develop the desired column height. Firing will be completed as rapidly as possible to prevent column collapse, promote more efficient combustion and reduce the length of time that high volumes of smoke will be produced.

Natural ignitions occurring within the Maximum Allowable Perimeter during the scheduled ignition window may be managed to achieve the goals and objectives of the prescribed burn plan, irrespective of land owner designated wildland fire management options (Critical, Full, Modified, or Limited) under the Alaska Interagency Wildland Fire Management Plan, if burning conditions are not forecast to exceed the upper limits (most extreme fire behavior) of the burning prescription. Aerial ignition may be used to create desired burn characteristics and manage fire spread. All applicable provisions of the prescribed burn plan will apply if natural ignition occurs. As soon as possible after detection and the subsequent decision to manage the ignition, fire staff will contact the affected land owners/managers, ADF&G-DWC and ADEC-Division of Air and Water Quality, and prepare (or update) a Firing and Holding Plan specific to the area where natural ignition occurred.

### **IV. SMOKE MANAGEMENT CONSIDERATIONS**

Approval for Open Burning will be obtained from the State of Alaska, Department of Environmental Conservation prior to ignition (Appendix I).

The fuel loading and consumption estimates for various timber size classes are shown in Table 4. Table 5 shows the total amount of particulate matter expected to be released during burning in each of the nine ignition units. The estimates are based on the assumptions that 60% of the area in an ignition unit will be burned and that, within the burned portion, 60% of the fuel will be consumed.

There is potential for smoke from prescribed burning to effect people living along the Parks Highway from mile 276 (Rex bridge over the Nenana River) to mile 328 (Skinny Dick's Halfway Inn), and those living at Gold King, because of their close proximity (3 – 11 miles) to the burn plan area (Table 6). This includes the communities of Anderson, Clear, and Nenana. However, there is also potential for smoke to impact the communities of Fairbanks, Fort Wainwright, North Pole, Eielson Air Force Base, and Salcha (24 – 36 miles to the east of the burn plan area) because the prevailing surface winds during the summer are from the

southwest. The actual distances to these smoke sensitive areas will vary depending on which ignition unit is fired (Table 6).

Potential smoke related problems include effects on individuals with respiratory problems, reduced visibility for aircraft (especially when landing or taking off at airports), and obscuring of scenic vistas enjoyed by tour groups and other people. There are airports at Clear Air Force Base, Nenana, Fairbanks, Fort Wainwright and Eielson Air Force Base. There are also airstrip at Gold King and North Pole.

The following measures will be taken to reduce the potential for smoke related problems:

1. Firing will not be conducted when fog or inversion potential exists.
2. Prior to firing, notification will be given to media contacts, the Alaska State Troopers, FAA Flight Services in Fairbanks, the Military, Nenana and Fairbanks governmental units and property owners in or adjacent to the burn plan area.
3. A Smoke Plume Transport Estimate will be filled out prior to ignition to plot the anticipated direction of the smoke plume.
4. If ignition is expected to occur when the surface wind vector is forecast to be from 045 to 075 degrees (towards Fairbanks):
  - a. Extra effort will be made to inform the public, public health providers, public safety officials, air quality regulators and potentially affected facilities, such as airports and health care centers, within this sector of the potential for smoke in populated areas and measures being taken to minimize impacts on public health and safety.
  - b. The burn boss will prepare and document the factors intended to mitigate potential smoke impacts in the Fairbanks metropolitan area. Factors may include, but are not limited to, a forecast change in surface wind direction during the burn, planned use of a firing pattern designed to transport smoke to higher altitudes, the presence of upper level winds blowing away from populated areas, and a forecast for rain in the burn area following completion of firing.
  - c. Firing will be conducted in a pattern designed to produce and maintain a convection column strong enough to lift smoke above the mixing height where transport winds can aid smoke dispersion. Plastic Sphere Dispenser (PSD) and/or Helitorch aerial ignition devices may be used alternatively or simultaneously to prevent column collapse during the firing process and develop the desired column height.
  - d. Firing will be completed as rapidly as possible to prevent column collapse, promote more efficient combustion and reduce the length of time that high volumes of smoke will be produced.

Table 4. Fuel loading and consumption for various timber size classes from *Photo Series for Quantifying Natural Fuels, Black Spruce and White Spruce Types in Alaska*.

<b>FUEL MODEL C-1/BS01</b>			
<b>Size class (inches diameter)</b>	<b>Tons/acre (estimated)</b>	<b>% Consumption (based on 60% burn)</b>	<b>Tons/acre consumed</b>
<b>0.00 to 0.25</b>	0.2	90	0.2
<b>0.25 to 1.00</b>	0.4	80	0.4
<b>1.00 to 3.00</b>	1.4	40	0.6
<b>3.00 to 9.00</b>	1.2	40	0.5
<b>Live Crown Mass</b>	5.57	75	4.2
<b>Above Ground Mass</b>	8.94	65	5.8
<b>Duff Layer (DMC, DC)</b>	128.65	60	77
<b>TOTALS</b>	146.36		89

<b>FUEL MODEL C-2/BS04</b>			
<b>Size class (inches diameter)</b>	<b>Tons/acre (estimated)</b>	<b>% Consumption (based on 60% burn)</b>	<b>Tons/acre consumed</b>
<b>0.00 to 0.25</b>	0.2	90	0.2
<b>0.25 to 1.00</b>	0.3	80	0.3
<b>1.00 to 3.00</b>	1.2	40	0.5
<b>3.00 to 9.00</b>	0.5	40	0.2
<b>Live Crown Mass</b>	7.38	75	5.5
<b>Above Ground Mass</b>	11.35	65	7.4
<b>Duff Layer (DMC, DC)</b>	81.57	60	49
<b>TOTALS</b>	102.5		63

<b>FUEL MODEL O1b</b>			
<b>Size class (inches diameter)</b>	<b>Tons/acre (estimated)</b>	<b>% Consumption (based on 60% burn)</b>	<b>Tons/acre consumed</b>
<b>0.00 to 0.25</b>	2	90	2
<b>0.25 to 1.00</b>	0	0	0
<b>1.00 to 3.00</b>	0	0	0
<b>3.00 to 9.00</b>	0	0	0
<b>Live Crown Mass</b>	0	0	0
<b>Above Ground Mass</b>	0	0	0
<b>Duff Layer (DMC, DC)</b>	0	0	0
<b>TOTALS</b>	2	0	2

Table 5. Total particulate matter released per area (using C-2 model).

Ignition Unit	Total acreage per area	Tons fuel per area @ 60% consumption	Tons consumed per area	Particulates (lbs/ton fuel @ 4.3% using PFEP)	Tons of particulate per area	60% of total acreage tons/acre
1	24,920.0	2,554,300.0	1,532,580.0	86.0	65,900.9	39,540.3
2	15,531.0	1,591,927.5	955,156.5	86.0	41,071.7	24,642.9
3	32,484.0	3,329,610.0	1,997,766.0	86.0	85,903.9	51,542.0
4	73,695.0	7,553,737.5	4,532,242.5	86.0	194,886.4	116,931.1
5	28,396.0	2,910,590.0	1,746,354.0	86.0	75,093.2	45,055.6
6	13,723.0	1,406,607.5	843,964.5	86.0	36,290.5	21,774.1
7	32,618.0	3,343,345.0	2,006,007.0	86.0	86,258.3	51,754.7
8	19,585.0	2,007,462.5	1,204,477.5	86.0	51,792.5	31,075.3
9	15,668.0	1,605,970.0	963,582.0	86.0	41,434.0	24,860.3

Table 6. Proximity of various communities to various portions of the burn plan area.

Location	Distance in miles to:			
	Nenana Airport	Clear-Anderson Airstrip	Gold King Airstrip	Fairbanks International Airport
Center of Area 1	17.0	25.0	30.0	26.8
Center of Area 2	10.6	20.1	33.3	32.3
Center of Area 3	24.3	17.9	18.7	41.0
Center of Area 4	27.3	24.9	14.9	35.1
Center of Area 5	35.4	29.9	6.6	40.2
Center of Area 6	24.2	27.1	21.4	27.6
Center of Area 7	16.4	18.4	25.9	34.0
Center of Area 8	12.6	14.7	29.3	37.1
Center of Area 9	20.0	23.1	23.6	30.1
NE side of the Maximum Allowable Perimeter (MAP) (Area 1 bdry.)				23.6
NW side of the MAP (Area 2 bdry.)	8.6			
SE side of the MAP (Area 5 bdry.)			3.1	
SW side of the MAP (Area 20 bdry.)		11.3		
Fairbanks International Airport	40.9	52.0	42.8	



## **V. MONITORING**

Weather data will be gathered preceding ignition from a portable Remote Automated Weather Station (RAWS) located on a representative site near the selected ignition unit(s). As the burn is initialized, on-site weather conditions will be measured every two hours until the ignition phase is completed. Smoke dispersion, rate of spread, and flame length will also be documented. Spot weather forecasts will be requested twice daily or more frequently when ignition is in progress.

## **PART IV — IMPLEMENTATION**

### **I. PUBLIC NOTICE**

Public announcements and contacts were initiated in September 1995 as the original burn plan neared completion. These have been repeated annually, in the hope that suitable burn conditions will develop to permit prescribed burning in the selected ignition unit(s). Public notice has included news releases, media interviews, participation on radio talk shows, letters to land owners, public meetings, signs at public places and trail heads, presentations to civic organizations, and visits to community fire departments, mayoral offices, health clinics and senior centers to discuss burn plans (Appendix G).

Adjacent landowners or managers, affected individuals and the general public will be notified prior to ignition. Preliminary contacts and notification will be made well in advance of ignition to increase public awareness, promote understanding of burn objectives, and provide an opportunity for concerns to be addressed. More extensive notification will be made immediately prior to ignition to increase awareness and ensure public safety.

#### **A. Procedures**

##### **1. More than 24-hours prior to ignition**

- Issue joint ADF&G/ADNR news release.
- Where possible, send letters to private land owners and respond to land owner concerns, if any.
- Give presentations to civic organizations and at public meetings, e.g., Fairbanks Fish and Game Advisory Committee.
- To the extent possible, visit community fire departments, mayoral offices, health clinics and senior centers to discuss burn plans.
- Consider posting notices at public places, boat launches, airstrips or trail heads, depending on the choice of ignition units and the potential for burning to impact public use and safety.
- To the extent feasible, attempt to notify individuals with trap lines within the area likely to be impacted by fire spread so they have the opportunity to remove traps and other personal gear prior to implementation of the prescribed burn.
- Contact the Tanana Chiefs Conference, Inc., to determine the location of native allotments, within or adjacent to the selected ignition units, and provide notice to allotment owners of the impending prescribed burn.
- Coordinate with managers of large tracts of adjacent private or public land during the planning phase for prescribed burning.

- Coordinate with USFS Pacific Northwest Research Station, Bob Vihnanek, Fire Research Forester (206) 849-3317) for pre-burn samples for fire consumption plots.

## **2. Within 24-hours of ignition**

- Contact the individuals or offices on the Public Contact List (Appendix H).
- Conduct an aerial reconnaissance to check for presence of people in the selected ignition unit(s). People observed in the area slated for firing will be informed about the impending burn effort and asked to leave the area.
- To the extent feasible, provide public interest announcements on local radio stations.
- Mention impending prescribed burns on the Hunting Information recording at ADF&G (telephone number 459-7386) and the Firewood Information recording at DOF (telephone number 451-2779).

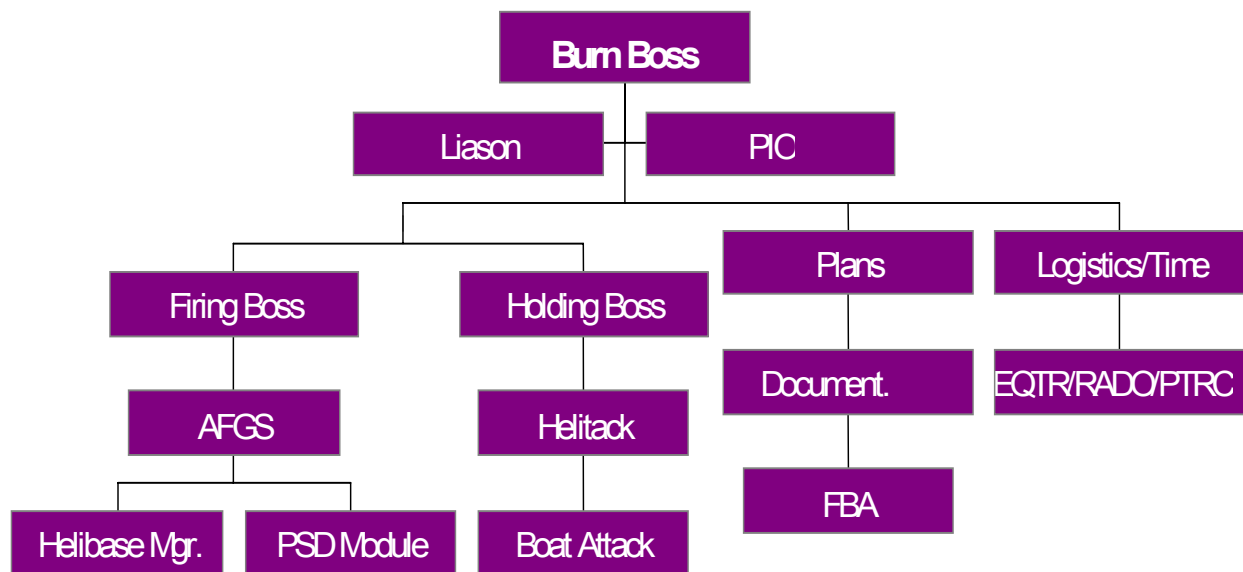
## **3. During ignition and subsequent burning**

- Questions about the fire should be directed to Pete Buist (DOF - 451-2602) in Fairbanks or Cathie Harms (ADF&G - 459-7231) at the prescribed burn staging area.
- Media will be offered interviews with staff and some degree of access to the burn area.
- The media and interested people will be offered information about measures being taken to protect private property and reduce potential smoke impacts in populated areas.
- The media and interested people will be offered information about the ecological effects of fire and the use of prescribed fire as a management tool.
- Media and interested public who wish to view the fire should go to the scenic wayside at milepost 325 Parks Highway (15 miles from Nenana, 35 miles from Fairbanks). Ignition Units 1 and 4 are located approximately 10 - 15 and 20 - 30 miles south of the scenic overlook, respectively.

## II. ORGANIZATION AND EQUIPMENT

### A. Organizational Chart

# Tanana Flats Organizational Chart



### B. Organization Plan

See Appendix S.

### C. Equipment List

See Appendix T.

### **III. OPERATIONS, IGNITION, HOLDING, AND MOP-UP**

#### **A. Operations Plan**

See Appendix U.

#### **B. Firing (Ignition)**

A conservative prescription, natural barriers to the spread of fire, and choice of firing sequence will be the primary methods for confining the burn to the selected ignition units. If necessary, a holding crew will be used to protect allotments and cabin sites from fire. Suppression crews and equipment will be available from the Division of Forestry (State of Alaska) and the Alaska Fire Service (USDI, Bureau of Land Management). A majority of the aircraft currently on contract for fire suppression activities are unavailable after August 30<sup>th</sup>. Call-When-Needed aircraft are available throughout the state during the entire burn window. It is recognized that the burn prescription represents optimal burning conditions. After ignition, the prescribed fire will be allowed to burn while contained within the Maximum Allowable Perimeter.

As prevailing winds are generally from the southwest over the burn area, wind driven fire could, in a worst-case scenario, bump hard into this leeward perimeter. The MAP boundary on this side is the Wood River with the military as adjacent landowner. This land is managed by the Bureau of Land Management with the management option of Limited.

A test burn will be conducted. Firing for the main burn will commence after the desired burning characteristics (intermittent crown fire) are obtained from the test burn. Ignition will be done with an aerial ignition platform outfitted with a Ping Pong Sphere Dispenser (PSD) and/or a Helitorch. See Appendix V for firing procedures.

#### **C. Holding Plan**

See Appendix W.

#### **D. Mop-Up and Patrol Plan**

See Appendix X.

#### **IV. CONTINGENCIES FOR POTENTIAL FIRE PROTECTION ACTIONS:**

The Fairbanks Area Fire Management Officer and the assigned line officer will manage suppression actions associated with prescribed burning under this plan. The primary method of containment within the ignition unit boundaries and the bounds of the MAP will be to apply an assigned prescription, and use natural barriers and a choice of firing sequence to halt fire spread.

##### **A. Prescribed burning threatens values identified for fire protection within the MAP.**

All reasonable and prudent efforts will be made with available forces to prevent fire from damaging those values identified in this plan as needing fire protection. Values needing protection are described in Part II, Section III-J, and Appendix K. Should pretreatment need to be done to ensure site safety, the most applicable and efficient combination of hydraulics, sprinklers, chainsaws, hand tools, or fire itself will be used. Site preparation information and necessary supplies are shown in Appendix L.

##### **B. Prescribed burning threatens values discovered during ignition or post-ignition monitoring that were not identified in the plan for protection.**

Any value requiring protection will be identified with latitude and longitude coordinates, and described in the holding portions of this plan. If additional structures or other values possibly warranting protection are discovered during ignition or post-ignition monitoring of a prescribed burn, fire staff will immediately cease all firing. A thorough assessment of the threatened resource area, legality of protection, and the feasibility of protection will be conducted by Burn Boss. A determination will then be given whether the values to be protected warrant the risk to firefighting personnel or expenditure.

If unanticipated localized protection needs become significant and cannot be met with on-site holding forces, the prescribed fire will be declared a wildland fire and appropriate action taken. The WFSA will replace the burn plan once the prescribed fire is declared a wildland fire.

##### **C. Burn conditions exceed prescription during ignition.**

Firing will be suspended if burn conditions exceed the prescriptive criteria in this plan during the ignition operation. The assigned line officer or Burn Boss will evaluate observed fire behavior and forecasted burn conditions to determine whether control actions are required and if they can be completed with the fire resources assigned to the prescribed burn. If significant suppression action is deemed necessary to limit fire spread and cannot be met with resources assigned to the prescribed fire, the fire will be declared a an escaped fire, a WFSA will be prepared, and suppression costs will be charged to the State suppression fund.

##### **D. Spread of a prescribed fire across the MAP appears imminent.**

Initial holding actions will be guided by either pre-existing holding plan. If significant suppression action is deemed necessary to limit fire spread and cannot be met with resources assigned to the prescribed fire, the fire will be declared a an escaped fire, a

WFSAs will be prepared, and suppression costs will be charged to the State suppression fund.

#### **E. Prescribed fire spreads outside the MAP.**

A prescribed fire that spreads outside the MAP and cannot be contained by holding forces may be declared an escaped fire by the assigned DOF line officer. Initial suppression actions will be guided by either pre-existing interagency agreements or, where none exist, by the preplanned management options in the Alaska Interagency Wildland Fire Management Plan. The owner(s) or manager(s) of adjacent lands that are imminently threatened by fire spread across the MAP will be contacted as soon as possible, a WFSAs will be prepared. Suppression costs will be charged to the State suppression fund. Once approved, the WFSAs will guide subsequent control efforts.

#### **F. Wildland Fire Situation Analysis**

The WFSAs are a systematic and documented decision process used to determine the most appropriate suppression strategy for a particular situation. It identifies and evaluates several alternative suppression strategies, which may range from commitment of fire suppression resources until the fire is extinguished to routine surveillance. The alternatives are analyzed in terms of probability of success, environmental consequences, social and political considerations, consequences of failure, and cost. The selected alternative must clearly identify the suppression objectives. Contingency objectives would be evaluated according to the following objectives:

1. Protection of life and property, primarily cabin sites, allotments, and communities adjacent to the Maximum Allowable Perimeter (MAP).
2. Potential for smoke management issues to affect the communities of Fairbanks and Nenana.
3. Fire escaping the maximum allowable perimeter.

**G. Escaped Fire Plan**

**Fire Model for Escaped Fire**

<b>CFFDRS Model C-2</b>	<b><u>Estimated Acreage</u></b>		
	<b>Low</b>	<b>High</b>	<b>Desired</b>
<b>1 Hr.</b>	24	495	105
<b>3 Hrs.</b>	219	4,456	941
<b>6 Hrs.</b>	874	17,824	3,765

<b>CFFDRS Model C-1</b>	<b><u>Estimated Acreage Range</u></b>		
	<b>Low</b>	<b>High</b>	<b>Desired</b>
<b>1 Hr.</b>	0	289	3.2
<b>3 Hrs.</b>	0.1	2,596	29
<b>6 Hrs.</b>	0.4	10,385	116

<b>CFFDRS Model C-1+</b>	<b><u>Estimated Acreage Range</u></b>		
	<b>Low</b>	<b>High</b>	<b>Desired</b>
<b>1 Hr.</b>	0	288	3.2
<b>3 Hrs.</b>	0.1	2,596	29
<b>6 Hrs.</b>	0.4	10,385	116

<b>CFFDRS Model O1b</b>	<b><u>Estimated Acreage Range</u></b>		
	<b>Low</b>	<b>High</b>	<b>Desired</b>
<b>1 Hr</b>	1	30	4
<b>3 Hrs.</b>	6	270	36
<b>6 Hrs.</b>	26	1,080	144



## V. MEDICAL PLAN

MEDICAL PLAN	1. Incident Name <b>Western Tanana Flats Burn</b>	2. Date Prepared	3. Time Prepared	4. Operational Period  ALL				
5. Incident Medical Aid Stations								
Medical Aid Stations	Location	Paramedics						
		YES		NO				
Nenana Clinic	832-5600			X				
Helibase	Nenana Airport			X				
Helispot— Aerial Firing	64 34 . 78 x 148 40 . 50			X				
6. Transportation								
A. Ambulance Services								
Name	Address / Phone	Paramedics						
		YES		NO				
Nenana Fire Department	Business Phone: 832-5632			X				
B. Incident Ambulances								
Name	Location	Paramedics						
		YES		NO				
Incident Helicopter				X				
M.A.S.T. (Contact State Troopers)	451-5333/ 451-5100			X				
7. Hospitals								
Name	Address	Travel Time		Phone	Helipad		Burn Center	
		Air	Grnd		YE	NO	YES	NO
Fairbanks Memorial	64 49 x 147 44.5	25	65	458-5555	X		X	
8. Medical Emergency Procedures								
<p>Primary Medivac ship will be Incident helicopter. Helipad at Fairbanks Memorial Hospital (FMH) if condition is critical. When flying into FMH helipad for a medivac, dispatch must contact the ER at 458-5555 with the patient info and ETA. Update Dispatch on 132.45 air to ground. Dispatch must contact City Fire at 459-6500 to dispatch ambulance to the helipad at FMH. Remember to follow-up with the appropriate paperwork. Multiple or severe Injuries contact State Troopers to activate M.A.S.T. for assistance.</p> <p>Designated Comp: Sue Whitney x2600; pager 458-4554.</p>								
206 ICS	9. Prepared by (Medical Unit Leader)			10. Reviewed by (Safety Officer)				

## VI. COMMUNICATIONS AND COORDINATION

All fixed wing and rotor wing aircraft assigned to the burn will have air-to-air capabilities on 127.45. Primary radio frequency for the burn will be via the Fairbanks Area Repeater on Rx 151.295/Tx 159.30 with code guard 141.3. Simplex 151.295/Tx 151.295 will be used for on-site communications.

<b>INCIDENT RADIO COMMUNICATIONS PLAN</b>		1. INCIDENT NAME: <b>Tanana Flats Burn</b>	2. DATE/TIME PREPARED:	3. OPERATIONAL PERIOD: DATE /TIME	
4. BASIC RADIO CHANNEL UTILIZATION					
SYSTEM/ CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS
VHF /AM	A/G	Helibax/ flight following	RX 132.45 TX 132.45	All Aircraft	
VHF / FM	TAC 1 TAC 2	Air Operations	RX/TX 159.375 RX/TX 172.225	Firing Ops (Pri) Firing Ops (Sec)	
VHF / FM	TURQUOIS	Deck	RX/TX 164.800	Firing Base Coordination	
VHF / FM (State)	CHANNEL 8	Ground Operations	RX/TX 151.280	Holding Crews & Hand Firing Crews	
VHF / FM S.O.A.		Command Repeater	RX 159.225 TX 154.755 CG 141.3	Command	
VHF / FM (State)	CHANNEL 3	FAF Dispatch	RX 151.295 TX 159.300 CG 141.3	I.A. / E.M.S. Command	
205 ICS	PREPARED BY (COMMUNICATIONS UNIT)				

## VII. GO/NO GO CHECKLIST

Initials	Checklist
	Supplies ordered
	Burn plan submitted for signatory approvals
	Meeting held for coordination with other burning agencies
	Open burning permit applied for with ADEC
	Supplies and equipment received and checked
	On site weather and other monitoring equipment
	Fuel inventory and sampling initiated
	Letters sent to land owners, if required
	Meeting with key people over plan
	Plans distributed to key individuals
	News release distributed
<b>Final Go / No Go Checklist</b>	
	ADEC open burn permit in hand
	Adjacent land owners notified
	Spot weather forecast info submitted and obtained
	Fire behavior predictions calculated and within prescription
	All personnel present and briefed
	Airspace closure in effect, flight service notified
	Signs at boat launches in place
	Final fire behavior and prescription check
	Test burn completed and evaluated

Remarks / Comments: \_\_\_\_\_

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## VIII. PRESCRIBED FIRE BRIEFING CHECKLIST

Initials	Guideline
	Explain the purpose of the burn to all personnel
	Explain the objectives set to achieve by burning
	Stress the chain-of-command and exhibit the organization chart
	Explain radio communications and radio assignments
	Make sure all personnel understand their individual assignments
	Explain the prescription parameters and expected fire behavior. Explain expected fire behavior outside the unit and spotting potential.
	Explain the type of ignition pattern being used and why
	Exhibit the ignition sequence
	Discuss the positions of the igniters in relation to each other
	Explain holding assignments and define standards
	Explain mop-up and patrol assignments and define standards
	Discuss the safety plan directly from the burn plan and state the necessary use of safety equipment as a result of the job hazard analysis
	Instruct overhead (Holding, Ignition, Crew) to familiarize their crew with the burn area and to present a tailgate safety session.
	Instruct each Boss to give pre-burn and post-burn briefings with their crews
	Explain vehicle assignments, safety driving, safety parking area at the burn site and road closures
	Present the general weather forecast and special weather forecast if available. Ask all burn personnel to watch for indicators of changes in weather or fire behavior and to communicate this through the chain-of-command

## **IX. FINANCIAL CONSIDERATIONS**

### **A. Funding**

Money from the State Fish and Game Fund is being provided for this project via Reimbursable Services Agreement with ADNR/DOF (RSA 1185170). The ADF&G/DWC has budgeted \$35,000 for operational implementation of the initial prescribed burn in the Western Tanana Flats Prescribed Burn Plan. The funding level for the initial burn may be adjusted when better cost estimates become available and other prescribed burning needs are assessed. Authority for approving charges against ADF&G/DWC funds encumbered in the RSA rests with Dale Haggstrom, ADF&G Fire and Habitat Management Coordinator, Fairbanks (work phone 459-7259; home phone 455-6831). Tom Paragi (work phone 459-7327; home phone 456-8682) will be first alternate.

The ADNR/DOF, as cosponsor with ADF&G/DWC, is providing in-kind services to reduce project costs. Most planning costs for both agencies are being charged to their respective operating budgets for area and regional activities. Most personnel costs for fire overhead staff will be covered by their normal projects (see Part D, below). Where possible, preparation, implementation and monitoring activities for prescribed burning will be conducted in conjunction with ongoing wildland fire management activities to reduce prescribed fire costs. Where possible, helicopters and other equipment on contract for wildland fire management activities will be used at contract rates to reduce prescribed burning costs.

Additional funding may be received from the BIA for protection of Native allotments in the planning area. The TCC, which is responsible for administering trust allotment services through a Public Law 93-638 compact with the BIA, has agreed to participate with ADNR and ADF&F to provide additional fire protection for the allotments in the form of hazard fuel treatment projects, prepared an Environmental Assessment<sup>10</sup> to evaluate the potential environmental consequences of fire protection and hazardous fuel reduction on the allotments, and conducted an archaeological review of potentially affected allotments<sup>11</sup>. Subsequently, a Finding of No Significant Impact (FONSI) was submitted to the BIA for approval.

### **B. Anticipated Expenses**

Burn cost estimates can be found in Appendices N through R.

### **C. Coding of Expenditures**

ADNR/DOF collocation code 10305659 is to be used for authorized charges against the RSA from ADF&G. This will normally include all preparation, implementation, and protection

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<sup>10</sup> J. Sprankle, D. Hanson, and J. Bell. 2001. Fire protection and hazardous fuels reduction of several Native allotments in the western Tanana Flats. Tanana Chiefs Conference, Inc., Forestry Program, NEPA Environmental Assessment No. 3. 14 pp.

<sup>11</sup> Ibid. Appendix C.

costs not assumed by ADNR/DOF from its normal operating budgets. However, *if* BIA funding is received for fire protection and hazardous fuel reduction efforts on the Native allotments (Table 7), expenditures for preparation and protection of allotments will be paid from the BIA account.

Table 7. Project funding allocations by collocation code and line item.

Line Item	ADF&G RSA 1185170 CC 10305659	BIA CC (unknown*)	Total
Personnel	\$10,000		\$10,000
Contractual	20,000		20,000
Supplies	5,000		5,000
TOTALS:	\$35,000		\$35,000

\* Note: TCC has applied for BIA funding for fire protection and hazardous fuel reduction on Native Allotments within or adjacent to the burn plan area, but approval is pending at this time.

#### D. Personnel Costs

Unless approved otherwise, regular wages for state employees will be covered by their normal projects. However, regular wages for ADNR/DOF employees assigned to the burn for more than three days, and out-of-area state and federal employees, may need to be reimbursed from the prescribed fire code(s). Approval to charge regular wage and benefit costs to collocation code 10305659 must be obtained from the ADF&G Fire and Habitat Management Coordinator.

Overtime for eligible employees assigned to a prescribed fire will be charged to the prescribed fire code(s). To minimize personnel costs, ignition will not be conducted on weekends or holidays unless the ADF&G Fire and Habitat Management Coordinator and the ADNR/DOF Line Officer assigned to the fire jointly agree that the additional expense is necessary to meet plan objectives.

All wages and benefits for Emergency Fire Fighters (EFF) will be charged to the prescribed fire code(s).

#### E. Equipment and Supplies

Equipment and supplies will be ordered through the Division of Forestry warehouse system and charged to the prescribed fire. Unused equipment and supplies will be returned through the warehouse system and the respective charges removed from the prescribed fire code(s). Allowance will be made for equipment and other non-expendable items that fire personnel sign out for use on the prescribed burn, but retain for use on subsequent wildland fires.

#### F. Suppression Costs

Costs for holding actions, site protection and other suppression actions by assigned holding forces on a prescribed fire will normally be charged to the prescribed fire. However, holding costs may be charged against the state suppression fund if additional fire fighters must be

brought in to assist the assigned holding forces or more than one load of retardant is required to limit fire spread.

In consideration of the limited funding available for prescribed burning, the ADNR/DOF line officer assigned to the prescribed burn will consider cost-effective strategies for handling suppression actions associated with the prescribed burn.

## **PART V — REPORTS**

### **I. POSTBURN EVALUATION AND SUMMARY**

#### **A. Postburn Debriefing**

The Prescribed Fire Burn Boss will hold a postburn debriefing session among staff involved in the firing and holding operation (and others as deemed appropriate) at the end of each phase of prescribed burning to discuss what went well and where improvements are needed.

#### **B. Prescribed Fire Report**

A Prescribed Fire Report (Appendix Y) will be completed and signed by the Prescribed Fire Burn Boss, and retained as part of the project file, within a reasonable time period following each attempted ignition. This postburn evaluation and summary will address the following items:

- Weather and fuel conditions that existed when the fire was ignited.
- Fire behavior observed during the initial firing and holding actions.
- Fire treatment results.
- Problems and concerns.
- Recommendations for future projects (if any).